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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/726,812 | 12/02/2003 | Qiming Zhu | 019680-007800US | 4116 |

20350 7590 08/02/2007

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| EXAMINER | |
|---|---|
| THOMAS, SHANE M | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2186 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 08/02/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/726,812 | ZHU, QIMING | |
| | Examiner | Art Unit | |
| | Shane M. Thomas | 2186 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *18 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-30 and 32-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30 and 32-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

This Office action is responsive to the amendment filed 5/18/2007. Claims 1-30 and 32-36 are currently pending.

All previously outstanding objections and rejections to the Applicant's disclosure and claims not contained in this Action have been respectfully withdrawn by the Examiner hereto.

### *Response to Amendment*

Applicants' amendments have overcome the previous rejections to the claims as discussed in the previously filed interview summary filed 5/21/2007. The present amendments to the claims have been carefully considered; however, upon further consideration and based on a cursory search of the prior art, the amendments do not place the claims in condition for allowance. Accordingly, this action has been made FINAL. To overcome the present rejections to the claims, the Examiner suggests elaborating on the claim limitation of "RAID-specific identification." The Examiner has broadly interpreted the term; however, Applicant's specification seems to distinguish the present invention from the prior art made of record and discussed below.

### *Claim Objections*

Claim 6 is objected to because of the following informalities: a period needs to be placed at the end of the claim. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,2, and 4, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782).

As per claim 1, Chatterjee teaches a **disk driver architecture wherein the architecture comprises:**

**A raid class driver** (pci.sys - figure 6) **including a first physical device object** (controller 1 PDO) **representing a RAID system** (controller 1 PDO represents a RAID system as the controller may be a RAID controller - ¶42) **comprised of a plurality of disk** (LD0-LD3 logical volumes are each comprised of a plurality of physical volumes - ¶36).

Chatterjee teaches a plurality of filter device objects (FiDO) each associated with a different logical disk (figure 6) but does not specifically teach a **plurality of functional device objects** (FDO) **each associated with one of the disks and adapted to interface with a second physical device object representing that disk.** Moore teaches in ¶29 that PDOs and FDOs comprise the device layer of disk drives; Moore also teaches in ¶¶28-29 that before accessing a disk drive, a respective PDO/FDO combination must be created before the system may access the disk drive's data. Thus, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to have combined the modified RAID system of Chatterjee with the teaching of utilizing FDOs and PDOs in order to have been able to properly access any new disk drives that are installed or added to the plurality of disk drives of Chatterjee.

Figure 5 of Moore shows a plurality of FDOs 510, each associated with one disk and interfaced with a second PDO 515 (as the first PDO is used to represent the collection of the entire RAID system as viewed by the host system as a single volume as previously discussed). The second PDO interfaces with the controller layer (represented in Moore by a USB controller 530-535, but would have been seen by one of ordinary skill in the art to have been any disk drive controller). Thus Moore teaches **the first PDO** (controller 1 PDO of figure 6 of Chatterjee) **is attached with each FDO** (figure 5 of Moore shows each disk FDO 510 attached to the controller PDO 535) **wherein each FDO is associated with a different disk** (FDOs 510a and 510b are each associated with a distinct disk - ¶28).

Modified Chatterjee does not specifically teach **each second PDO providing a RAID-specific device identification.** Humlicek teaches a RAID-specific ID (DID 230 - figure 2) stored on each disk of a RAID system [6/63 - 7/6]. Thus it could have been seen by one of ordinary skill that the RAID-specific ID would have been obtained from the disk itself as it is stored on the disk, itself. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the RAID system of Chatterjee with the teachings of Humlicek In order to preserve the RAID configuration disk identification on the drives that represent the RAID system. Such a modification would have allowed the system of Chatterjee to more flexibly identify disk drives associated with a group regardless of whether the drives have been transferred between different RAID systems. Further, such a modification

allows the processing of host requests to occur as rapidly as possible, as the RAID-specific IDs of the disks allow for quick activation of the disk that represent a RAID system.

As per claim 2, the second PDO, which provides a RAID-specific device ID as taught above with reference to the Humlicek, is included in a disk controller driver to interface with a disk controller as taught by Moore in ¶19 and ¶28, as the second PDO is generated based on information gathered from the physical disk device that had been attached to the system. The newly created second PDO is included on the device stack 500 (figure 5), or rather the disk controller driver.

As per claim 4, the RAID class driver of Chatterjee combines each disk into a RAID system as Chatterjee teaches in ¶42. The controller on the PCI bus may be a RAID controller and thus the disks would therefore be a RAID system.

Claims 3,28,29, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Merkey (U.S. Patent Application Publication No. 2003/0070043).

As per claim 3, modified Chatterjee does not specifically teach the first PDO representing a RAID system is adapted to provide a standard disk device ID to an operating system. Merkey teaches in ¶76 logic to provide the RAID system of disks to a processor [e.g. the operating system] as a single disk device ID. Representing the entire RAID as a single disk would have allowed for a user to store data redundantly while hiding the redundancy disks and organization

from the user, thereby simplifying the RAID interaction for a user. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the RAID system of Chatterjee with the teaching of single drive RAID identification of Merkey in order to have simplified the data redundancy of the system of Chatterjee for a user who wishes to protect data.

As per claim 28, relying on the combination of references and motivation as discussed above with relation to claim 1, Humlicek teaches **receiving a RAID-specific ID for each disk of the RAID system** (DID 230 - figure 2 - [6/63 - 7/6]), where the RAID system is the combination of all the logical disks LD0-LD3 and the physical storage disks they represent (¶36), **binding a respective RAID specific functional interface** (each disk in a group of disks has its own FDO as taught by Moore in figure 5 - as the disks are part of the RAID system, the Examiner is therefore considering the FDO of each disk to be a RAID-specific functional interface) **to each disk having a RAID-specific device ID** (as all of the disks are being considered by the Examiner to be part of the RAID system as shown in figure 6 of Chatterjee), **binding all of the RAID-specific functional interfaces to a same disk object representing the entire RAID system** (all FDOs of the disk are connected to the controller 1 PDO as shown in figure 6 of Chatterjee - controller 1's PDO represents the entire RAID system as it is shown as being the only component connected to the RAID disks).

Modified Chatterjee (as discussed in claim 3 above) teaches **providing an OS with a standard disk device ID via the disk object** - Merkey ¶76.

As per claim 29, the **RAID-specific device ID is received from one or more disk controllers** (as discussed below with respect to claim 15, disk controller 0 may interface with a

portion of the plurality of disks; and since a disk access is required to obtain the RAID-specific information as taught by Humlicek, the disk controller therefore enables that access as the disk controller communicates with the portion disks), **wherein each disk controller is adapted to interface with at least a portion of the plurality of disks** (as discussed).

As per claim 32, **the RAID class driver** (PCI.sys) is **initialized in response to identification of a RAID controller** (controller 1 - ¶42). Device enumeration is well known in the art; therefore, upon detection of the RAID controller on the pci bus, the system of modified Chatterjee would have loaded the RAID class driver to enable communication with the RAID controller.

As per claim 33, **the RAID controller comprises hardware** as shown with respect to ¶42 and figure 2 (element 220) of Chatterjee.

As per claim 34, a standard disk driver object (PDO) is loaded to interface with the disk object (¶42 of Chatterjee) thereby enabling transparent access to the RAID system as the entire RAID volume may be visible as a single logical drive (¶76 of Merkey).

Claims 5-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Lu (U.S. Patent Application Publication No. 2004/0073747).

As per claim 5, mirroring data is well known in the art of RAID as RAID-1 implementation. Modified Chatterjee does not specifically teach using a RAID-1

implementation to mirror data requested to be written to a disk. Lu teaches a RAID system is adapted to mirror a written data block on at least a portion of the plurality of disk (such as group comprising LD3-LD4 of Chatterjee), as a disk group may be organized as RAID level 1 (¶35), which is also known as RAID mirroring - ¶8. The functional device objects for the associated disk drives would have been utilized as the FDOs represent the disk drive to the function driver (¶29 of Moore), which in turn is responsible for providing a software interface to the particular device and is called for transferring data (¶6 of Morre), such as during a mirroring write operation. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the RAID system of Chatterjee to have implemented a RAID-1 system. Mirroring would have implemented a layer of data redundancy to prevent a loss of data.

As per claim 6, a first and second write request of data blocks may be made to different portions of the plurality of disks during a striped write when the disk drive group is configured as a RAID-0 system (¶7 and ¶35 of Lu). The FDOs would have been utilized to perform the writing as discussed above in the rejection of claim 5.

As per claim 7, in response to receiving a request to write a first and second data block to a plurality of disks (such as disk group represented by LD3-LD4 of Chatterjee), the RAID driver is adapted to write via the FDOs an error correction (parity) block to a portion of the plurality of disk when the disk drive group 138 is configured as a RAID-5 system (¶35 of Lu). RAID-5 incorporates parity calculation for data redundancy - ¶9 of Lu. The FDOs for the respective disks to be written to would have been utilized to perform the writing of the parity block as discussed above in the rejection of claim 5.

As per claim 8, the RAID controller would comprise both a RAID controller FDO and a RAID controller PDO as controller drivers are enumerated as such as shown in figure 5 of Moore (in this case as a USB controller). Chatterjee shows in figure 5 a controller FDO in Controller 0's miniport driver 506 interfaced to a controller PDO within PCI driver 510. The PDO representing the RAID system (i.e. controller PDO - figure 6 of Chatterjee) would therefore be seen as a child of RAID controller's FDO in the driver layer hierarchy of the system of figure 6 of Chatterjee as in order to implement the drive itself as a RAID drive, the RAID controller must be accessed as shown in the flow diagram of figure 5 of Moore (it should be noted that even though figure 5 of Moore does not show a logical volume being represented with a PDO, Chatterjee teaches as such - ¶42).

As per claim 9, Humlicek teaches **RAID configuration data stored in computer system configuration memory** (e.g. a portion of each respective RAID drive - [6/67 - 7/6].

As per claims 10, Chatterjee teaches that a first portion of the plurality of disks (LD2-LD3) is associated with a first disk controller (RAID controller 1 - ¶42) and the second potion of the plurality of disks (LD0-LD1) may be associated with a second disk of a second type controller (SCSI controller 1 - figure 2).

As per claim 13, Chatterjee does not specifically teach the second type of controller being for an external disk; however, Lu teaches a second controller 110 can be used for external disks (iSCSI controller 106).

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Lu (U.S. Patent Application Publication No. 2004/0073747) in further view of Frank et al. (U.S. Patent Application Publication No. 2004/0160975).

As per claim 11, modified Chatterjee discloses a SCSI controller and a RAID controller for the first and second controllers (figure - 2), but fails to specifically disclose an EIDE controller.

Frank teaches an EIDE controller (¶7). It would have been obvious to one of ordinary skill in the art to have used the EIDE controller taught by Frank in the RAID control system of Chatterjee because both inventions involve methods of controlling a RAID system using various controller and disk types and the EIDE taught by Frank et al. is an improvement over the standard IDE disclosed by Chatterjee.

As per claim 12, Frank teaches the first type of controller being a serial ATA type controller and the second type being a parallel ATA type (¶7).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Brantley Jr. et al. (U.S. Patent No. 5,163,149).

As per claim 14, modified Chatterjee does not teach the RAID class driver being adapted to optimize data access by combining separate data access operations associated with a disk of the RAID system into a single data access operation. Brantley teaches such a concept in [1/24-29]. It would have been obvious to one of ordinary skill in the art to have combined the access combination of Brantley with the RAID control system of Chatterjee because both systems involve access to a memory and the combined access method improves the access time (Brantley - [1/32-39]).

Claims 15,22, and 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Humlicek et al. (U.S. Patent No. 5,822,782).

As per claim 15 Chatterjee teaches a **RAID controller** 220 **adapted to induce an operating system to load, into a processing unit** 202 **on another integrated circuit** (as the controller 220 and processor 202 are connected via PCI bus 206, it can be seen the components are on different integrated circuit), **a RAID class driver** (PCI.sys contains a PDO for RAID controller 1 - ¶42) **having a physical device object representing a RAID system comprised of a plurality of disks** (¶36 and figure 6).

Chatterjee further teaches **a first disk controller** (controller 0) **adapted to interface with at least a portion of the plurality of disks** (either during a SCSI split implementation or a failure of the other RAID controller 1 - figure 8, steps 814 to 802 and steps 807 to 808) **and further adapted to induce the OS to load a disk controller driver** (evidence by controller 0's PDO as part of the PCI.sys driver).

Chatterjee does not specifically teach wherein the **disk controller driver** (controller 0 PDO, which may be a RAID controller - ¶42) **is adapted to provide RAID-specific device identifications for the portion of the plurality of disks.** Humlicek teaches a RAID-specific ID (DID 230 -figure 2) stored on each disk of a RAID system [6/63 - 7/6]. Thus it could have been seen by one of ordinary skill that the RAID-specific ID would have been obtained from the disk itself as it is stored on the disk, itself. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have further modified the RAID system of Chatterjee with the teachings of Humlicek In order to preserve the RAID configuration disk identification on the drives that represent the RAID system. Such a modification would have allowed the system of Chatterjee to more flexibly identify disk drives associated with a group regardless of whether the drives have been transferred between different RAID systems. Further, such a modification allows the processing of host requests to occur as rapidly as possible, as the RAID-specific IDs of the disks allow for quick activation of the disk that represent a RAID system. Because the controller 0 of Chatterjee may be a RAID controller as well (¶42), it could have been seen that the portion of the plurality of disks may have also been a RAID system.

As per claim 22, Chatterjee suggests an alternate RAID system with a **second disk controller** (the system may have more controllers than shown in figure 2,5, and 6 - ¶32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have seen that with the addition of a second controller, the OS would have loaded a second disk controller driver, which similarly to the first disk controller driver, provide RAID-specific device IDs for the portion of the plurality of disk which the second controller was attached, as taught by Humlicek above.

As per claim 23, Chatterjee suggests an alternate RAID system with a **second disk controller** (the system may have more controllers than shown in figure 2,5, and 6 - ¶32). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have seen that with the addition of a second controller, the OS would have loaded a second disk controller driver, which similarly to the first disk controller driver, provide RAID-specific device IDs for the portion of the plurality of disk which the second controller was attached, as taught by Humlicek above.

Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Merkey (U.S. Patent Application Publication No. 2003/0070043).

As per claim 16, modified Chatterjee does not specifically teach the first PDO representing a RAID system is adapted to provide a standard disk device ID to an operating system. Merkey teaches in ¶76 logic to provide the RAID system of disks to a processor [e.g. the operating system] as a single disk device ID. Representing the entire RAID as a single disk would have allowed for a user to store data redundantly while hiding the redundancy disks and organization from the user, thereby simplifying the RAID interaction for a user. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the RAID system of Chatterjee with the teaching of single drive RAID identification of Merkey in order to have simplified the data redundancy of the system of Chatterjee for a user who wishes to protect data.

Claims 17-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Lu (U.S. Patent Application Publication No. 2004/0073747).

The rejections for claims 17-19 and 21 follow the rejections and motivation to combine of claims 5-7 and 9, respectively.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Lu (U.S. Patent Application Publication No. 2004/0073747) in further view of Gajjar (U.S. Patent No. 5,787,463).

As per claim 20, modified Chatterjee discloses the base claim 19, but fails to specifically disclose that the integrated circuit is adapted to determine the value of an error correction block from the first and second data block. Gajjar teaches such in (Col. 4 Lines 5-9). It would have been obvious to one of ordinary skill in the art to combine the error correction method of Gajjar with the RAID/parity method of modified Chatterjee as the system already utilizes a parity error correction method (as discussed with reference to Lu), and the method of Gajjar is a common method of calculating this parity information.

Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Humlicek et al. (U.S.

Patent No. 5,822,782) in further view of Frank et al. (U.S. Patent Application Publication No. 2004/0160975).

As per claims 24 and 25, Chatterjee teaches using a SCSI controller (¶42) for the first controller but fails to teach the second controller (¶32) is of a second type. Frank teaches an EIDE controller may be used to access disks (¶7). It would have been obvious to one of ordinary skill in the art to have used the EIDE controller taught by Frank in the RAID control system of Chatterjee because both inventions involve methods of controlling a RAID system using various controller and disk types and the EIDE taught by Frank et al. is an improvement over the standard IDE disclosed by Chatterjee.

As per claim 26, Frank teaches the first type of controller being a serial ATA type controller and the second type being a parallel ATA type (¶7).

As per claim 27, Frank teaches that a RAID controller may be an iSCSI controller, which are known in the art as coupling a RAID controller to external disks.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Merkey (U.S. Patent Application Publication No. 2003/0070043) in further view of Frank et al. (U.S. Patent Application Publication No. 2004/0160975).

As per claim 30, Chatterjee teaches using a SCSI controller (¶42) for the first controller but fails to teach the second controller (¶32) is of a second type. Frank teaches an EIDE controller may be used to access disks (¶7). It would have been obvious to one of ordinary skill

in the art to have used the EIDE controller taught by Frank in the RAID control system of Chatterjee because both inventions involve methods of controlling a RAID system using various controller and disk types and the EIDE taught by Frank et al. is an improvement over the standard IDE disclosed by Chatterjee.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Merkey (U.S. Patent Application Publication No. 2003/0070043) in further view of Rezual Islam et al. (U.S. Patent No. 6,282,670).

Modified Chatterjee does not specifically teach the **RAID-specific IDs are obtained from a CMOS configuration**. Rezaul Islam teaches that the same RAID configuration data that is stored in each disk drive can also be stored in a nonvolatile RAM for keeping track of changes to the disk drive devices and the configuration [7/38-65]. The RAID controller utilizes the CMOS to initiate the system based on updated configuration data [8/32-53]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a CMOS memory to store the configuration data in order to have been able to store the configuration data locally to the RAID controller. By storing the configuration data only on the disk drives themselves (as described by Humlicek) would not have allowed the system of modified Chatterjee to have accessed the configuration during system initialization for the POST routine ([8/32-53] of Rezaul Islam).

Claims 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782) in further view of Rezual Islam et al. (U.S. Patent No. 6,282,670).

Modified Chatterjee does not specifically teach the **RAID-specific IDs are obtained from a CMOS configuration**. Rezaul Islam teaches that the same RAID configuration data that is stored in each disk drive can also be stored in a nonvolatile RAM for keeping track of changes to the disk drive devices and the configuration [7/38-65]. The RAID controller utilizes the CMOS to initiate the system based on updated configuration data [8/32-53]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a CMOS memory to store the configuration data in order to have been able to store the configuration data locally to the RAID controller. By storing the configuration data only on the disk drives themselves (as described by Humlicek) would not have allowed the system of modified Chatterjee to have accessed the configuration during system initialization for the POST routine ([8/32-53] of Rezaul Islam).

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cox (U.S. Patent Application Publication No. 2004/0064828) teaches using a filter driver object 122,126 (figure 1) in conjunction with a FDO and PDO.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached on M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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